DETAILED ACTION

1.   The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

Continued Examination Under 37 CFR 1.114

2.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114.

Response to Amendment

3.   This communication is responsive to the applicant's amendment filed on 08/31/2009 and

RCE filed on 11/30/2009. The applicant(s) amended claims 1 and 17 (see the amendment: pages

2-3).

Response to Arguments

4.   Applicant's arguments filed on 08/31/2009 with respect to the claim rejection under 35

USC 103, have been fully considered but are moot in view of the new ground(s) of rejection,

since the amended claims introduce new issue and/or new ground, which change the scope of the

claims.

It is noted that the previous cited references are still applicable to the amended claims for

the corresponding claim rejection (may include newly combined teachings and/or interpretations)

with new ground (see detail below).

It is also noted that the response to the applicant's arguments based on the newly

amended claims (see Remarks: pages 5-9) is directed to the claim rejection with the new ground

(see below). Regarding combining prior art teachings including the newly amended limitation, it

is noted that, the test for obviousness is not whether the features of a secondary reference may be

bodily incorporated into the structure of the primary reference; nor is it that the claimed

invention must be expressly suggested in any one or all of the references. Rather, the test is what

the combined teachings of the references would have suggested to those of ordinary skill in the

art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Further, it is noted that the

examiner's arguments in section of "Response to Argument" of the previous final office action

(filed on 06/29/2009) are still applicable to the newly amended claims, with newly combined

prior art teachings and/or interpretations (see below).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

5.   Claims 1-8 and 17-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the

relevant art that the inventor(s), at the time the application was filed, had possession of the

claimed invention.

Regarding claims 1 and 17, the newly amended limitation "collecting a plurality of

utterance **independent of any call type**" introduces new subject matter, which is not specifically

described in the original specification. The applicant failed to provide reference(s) in the

original specification to show where the newly amended limitation came from and nowhere in

the specification can be found for specifically describing/supporting the newly amended

limitation.

Regarding claims 2-8 and 18-20, the rejection is based on the same reason described for

claims 1 and 17, because the dependent claims inherit the same problematic limitation(s) of its

parent claims.

Claim Rejections - 35 USC § 103

6.   Claims 1-3, 5-6, 8-11, 13-14 and 16-22 are rejected under 35 U.S.C. 103(a) as being

unpatentable over ARAI (US 6,173,261) in view of ATTWATER et al. (US 6,839,671)

hereinafter referenced as ATTWATER.

As per **claim 1,** as best understood in view of the claim rejection under 35 USC 112 1st

(see above), ARAI discloses 'grammar fragment acquisition using syntactic and semantic

clustering' (title) 'for recognizing and understanding fluently spoken languages' (abstract),

comprising:

"collecting a plurality of utterances independent of any call type" (Fig. 9 and col. 9, lines

1-8, 'database (collection) of a large number of utterances (collected plurality of utterances)',

wherein the claimed "utterances independent of any call type" are interpreted as or read on the

collected utterances before classification or clustering);

     "generating a plurality of call types, each generated call type being based on a first set of

utterances selected from the collected plurality of utterances", (col. 2, lines 13-35, 'clustering

phrases into grammar fragments' that are associated to the utterances, 'generate a collection of

grammar fragments each representing a set of syntactically and semantically similar phrases' and

used to 'determine a call classification (a call type)'; Fig. 9 and col. 9, line 1 to col. 10, line 45,

'a set of candidate phrases (including call types) having a probabilistic relationship with one or

more of the set of predetermined routing objectives with which the input speech utterances are

associated', 'call-type classification (generating call types)'; Fig. 2, also showing call types

having/associating the training transcriptions (corresponding to the first set of utterances); also

see the examiner's arguments stated in the above section of "Response to Arguments");

     "generating a first natural language understanding model using call type information

contained within said first set of utterances"(col. 2, lines 6-9 and 20-35, 'to utilize these grammar

fragments (associating corresponding utterances) in language models (interpreted as natural

language understanding models) for both speech recognition and understanding', 'salient

sequences of these fragments may then be automatically acquired, which are then exploited by a

spoken understanding module to determine a call classification'; Figs. 11a-11c and col.10, lines

30-45, 'as a consequence of this expansion, a fully expanded salient fragment network (also

corresponding to the first natural language understanding model) is obtained (generated)');

     "testing said first natural language understanding model" (col. 9, lines 61-67, 'recognition

language model (natural language understanding model)', 'the training transcription contained

7,800 sentences while the test transcription contained 1000 sentences', which implies testing the

language model);

Even though ARAI discloses that the grammar fragments formed from candidates

phrases that generated from the training transcription (based on the testing) can be sorted based

on call types (col. 6, lines 39-53), ARAI does not expressly disclose "**modifying** said plurality of

call types based on said testing" and "**generating a second** natural language understanding

model using said modified plurality of call types".   However, the feature is well known in the art

as evidenced by ATTWATER who discloses 'learning of dialogue states and language model of

spoken information system' (title) for creating 'a dialog model' using a training corpus of

example human-human dialogues (abstract), comprising 'a natural language call steering system'

in that 'the received speech utterance is analysed by the recognizer with reference to a language

model' and using 'semantic model to form a semantic classification' that provides classifiers

according to a predefined set of meanings (corresponding to call types) (col. 3, line 60 to col. 4,

line 14), and teaches that 'the sentences in supervised training corpus 42 are clustered using

clustering algorithm' and 'clusters thus generated are manually checked' in which the

words/phrases can be deleted or substituted (modified) in forming a cluster (col. 6, lines 1-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention

was made to recognize that supervised training with manually checked clusters would provide

capability of modifying the clusters/classes for the transcribed data so as to form a different

language model, and to modify ARAI by combining the feature of using a candidate set of

grammar fragments associating the clustered call-types in the training transcription disclosed by

ARAI (col. 3, lines 1-60) and the feature of using supervised training and/or manually checking

(or transcribing) clusters with modifying capabilities, such as deleting or substituting, as taught

by ATTWATER (col. 6, lines 1-22), so that the call type of the candidate fragments associating

the utterances/transcription can be manually modified and another fully expanded salient

fragment network (second natural language understanding model) can be generated, for the

purpose (motivation) of generating more accurate transcriptions and/or improving call-type

classification performance for the system (ATTWATER: col. 6, lines 30-31; ARAI: col. 10, lines

21-22).

As per **claim 2** (depending on claim 1), ARAI in view of ATTWATER further discloses

"generating an annotation guide using a second set of utterances which is a subset of said first set

of utterances" (ATTWATER: Fig. 3 and col. 5, lines 13-14, 'nodes… have been annotated with

operator utterance'; col. 11, lines 33-35, 'each call in the corpus can be annotated according to

the cluster of each operator utterance in the call', wherein the content of labels 26 in Fig.3, such

as 'greeting', can be reasonably interpreted as generated annotation guide as claimed; ARAI:

Fig.11C also suggests that the utterances corresponding to phrase 'collect call' (or 'collect phone

call') is a subset of the utterances of the consequence expansion (the model), so that it would

have been obvious to one of ordinary skill in the art at the time the invention was made to

combine the teachings from ARAI and ATTWATER by providing generated annotation

(annotation guide) using a subset of utterances of the consequence expansion, for the purpose

(motivation) of generating more accurate transcriptions and/or improving call-type classification

performance for the system (ATTWATER: col. 6, lines 30-31; ARAI: col. 10, lines 21-22)).

As per **claim 3** (depending on claim 1), ARAI in view of ATTWATER further discloses

"generating call type data using at least **one of** data clustering, relevance feedback, string

searching, data mining, and active learning tools" (ARAI: Fig. 9, 'grammar fragment (data)

clustering'; ATTWATER: col. 5, lines 61-65, 'dynamic programming (DP) match (string

searching)').

      As per **claim 5** (depending on claim 1), ARAI in view of ATTWATER further discloses

"said first natural language understanding model is trained using a first text file containing

utterances contained within said first set of utterances and a second text file containing call types

assigned to said utterances in said first text file" (ARAI: Fig. 9 and col. 9, line 4 to col. 10, line

45, wherein the 'database' with labeled utterances and training transcriptions necessarily include

text file/table (first text file) linking (containing) the corresponding utterances, and the phases

(text) classified with call types are also necessarily stored in a file or table (second text file) and

linked (assigned) to the corresponding utterances; also see Figs. 7A-7C and 11A-11C).

      As per **claim 6** (depending on claim 1), ARAI in view of ATTWATER further discloses

"said natural language understanding model is tested using a subset of said first set of utterances"

(ARAI: Fig. 9, 'test speech utterance' and 'input speech').

      As per **claim 8** (depending on claim 1), ARAI in view of ATTWATER further discloses

"said first natural language understanding model is created prior to an annotation guide"

(ATTWATER: Fig. 3, wherein the content of labels 26, such as 'greeting', is interpreted as

generated annotation guide; col. 11, lines 33-35, 'once the sentences in the training database

have been clustered …each call in the corpus can be annotated **according to the cluster** of each

operator utterance in the call', which suggests the model is created prior to the annotation

(guide)).

As per **claims 17-20**, the rejection is based on the same reason described for claims 1-2

and 5-6, because it also reads on the limitations of claims 1-2 and 5-6 respectively.

7.   Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over ARAI in

view of ATTWATER as applied to claim 1, and further in view of MAES et al. (US

2003/0088421) hereinafter referenced as MAES.

As per **claim 4** (depending on claim 3), even though ARAI in view of ATTWATER

discloses generating call types, as stated above, ARAI in view of ATTWATER does not

expressly disclose "using a graphical user interface (GUI)." However, the feature is well known

in the art as evidenced by MAES who discloses 'application that supports multi-modal',

'conversational applications' utilizing 'NLU (natural language understanding)', 'multi-modal

interactive dialog comprises modalities such as speech, visual (GUI)…and a combination of such

modalities (e.g. speech and GUI)' (p(paragraph)46); and 'multi-modal browser application

comprise a GUI browser' (p73). Therefore, it would have been obvious to one of ordinary skill

in the art at the time the invention was made to modify ARAI in view of ATTWATER by

combining the feature of generating call types as stated for claims 1 and 3, with feature of

supporting multi-modal applications including using GUI, as taught by MAES, for the purpose

(motivation) of better disambiguating and understanding the user's intention and/or displaying

the related presenting and updating information (MAES: p46, p244).

As per **claim 7** (depending on claim 1), the rejection is based on the same reason

described for claim 4, because the claim recites the same or similar limitation(s) as claim 4.

Conclusion

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        QH/qh
        January 12, 2010
        /Qi Han/
        Primary Examiner, Art Unit 2626